

WHAT IS CLAIMED IS:

1. A pulse-width modulated digital amplifier comprising:
 - a loop filter for producing a stable loop output signal E_w from an input digital signal E_i ,
the loop filter including an n th order integrator, n having a value greater than one,
the n th order integrator comprising a first integrator and m additional integrators,
the first integrator having an absolute magnitude of gain that is greater than the sum of
the absolute magnitudes of gains of the m additional integrators; and
 - a comparator for receiving loop output signal E_w and a pre-selected signal, the
comparator generating a pulse-width modulated signal E_p from the pre-selected signal and signal
 E_w ,
the pre-selected signal comprising a sawtooth wave generated signal;
 - a switching output stage for receiving pulse-modulated signal E_p and generating an
output signal E_o ; and
 - a feedback loop for channeling a portion of the signal E_o to the loop filter input and
combining with the input signal E_i .